

Insight Management Agents for HP Integrity Servers with Microsoft® Windows®



May 2004 (Sixth Edition)
Part Number 349143-006

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Insight Management Agents for HP Integrity Servers with Microsoft Windows

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About This Guide

This guide is designed to be used as step-by-step instructions for installation and as a reference for operation, troubleshooting, and future upgrades.

Text Conventions

This document uses the following conventions to distinguish elements of text:

Table 1: Text Conventions

Keys	Keys appear in boldface. A plus sign (+) between two keys indicates that they should be pressed simultaneously.
USER INPUT	User input appears in a different typeface and in uppercase.
<i>FILENAMES</i>	File names appear in uppercase italics.
Menu Options, Command Names, Dialog Box Names	These elements appear in initial capital letters.
COMMANDS, DIRECTORY NAMES, and DRIVE NAMES	These elements appear in uppercase.
Type	When you are instructed to <i>type</i> information, type the information without pressing the Enter key.
Enter	When you are instructed to <i>enter</i> information, type the information and then press the Enter key.

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.



CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations:

HP Website

The HP website has information on this product as well as the latest drivers and Flash ROM images. You can access the HP website by logging on to the Internet at <http://www.hp.com/>.

Technical Support

In North America, call the HP Technical Support Phone Center at 1-800-633-3600. This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.

Outside North America, call the nearest HP Technical Support Phone Center. For telephone numbers for worldwide Technical Support Centers, refer to the HP website, www.hp.com.

Outside North America, call the nearest HP Technical Support Phone Center. Telephone numbers for world wide Technical Support Centers are listed on the HP website. Access the HP website by logging on to the Internet at <http://www.hp.com/>.

Be sure to have the following information available before you call :

- Technical support registration number (if applicable)
- Product serial number (s)

-
- Product model name(s) and numbers(s)
 - Applicable error messages
 - Add-on boards or hardware
 - Third-party hardware or software
 - Operating system type and revision level
 - Detailed, specific questions

HP Authorized Reseller

For the name of the nearest HP authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- In other locations, refer to the HP website.
- HP Itanium Server site: <http://www.hp.com/support/itaniumservers>
- HP Internet website: <http://www.hp.com/>

Introduction

Integrated Management Features

PC networks are increasingly important to many businesses and organizations. As these networks become larger and more complex, two facts have become clear: The network and its components are becoming indispensable to the organization.

Maintaining Minimum Downtime and Maximum Performance for the Network is Crucial for Overall Productivity

Responding to this demanding, business-critical PC network environment, HP has established the Server Management Technology Framework that includes integrated management features and management tools for manageable devices on the network. Manageable devices may include servers, workstations, desktops, portables, routers, switches, and hubs.

A significant requirement for any server operation is the ability to manage fault conditions, monitor performance, control security and configuration, as well as to control devices remotely. Each hardware subsystem—such as disk storage, system memory, and system processor—has a robust set of built-in management capabilities. In addition to fault prevention, Full-Spectrum Fault Management keeps your system up and running in the unlikely event of a failure, and delivers rapid device recovery to normal operation following a fault.

To provide timely status and the means for remote control, HP has developed HP Insight Manager 7 and the HP Insight Management Agents, management tools that put you in charge of integrated management features.

HP Insight Management Software Architecture

The HP Insight Management application has a client/server architecture, similar to other network management solutions, comprised of the agent software (HP Insight Management Agents for Servers) and the management application software (HP Insight Manager 7).

HP Insight Management Agents for Servers

HP Insight Management Agents for Servers operate on devices, performing in-depth monitoring of the device's state by collecting and measuring parameters. These parameters indicate the current state of subsystems by counting the occurrence of particular events (for example, the number of read operations performed on a disk drive) or by monitoring the state of a critical function (for example, whether the cooling fan is operating).

HP Insight Management Agents for Servers provide access to device management data using a Web browser over industry-standard HTTP protocol. This allows you to access data from anywhere that you have network access.

IMPORTANT: HP Insight Management Agents for Servers are not the same as HP Client Management Agents. HP Insight Management Agents for Servers run on HP Integrity servers.

Management Agents for Servers provide information to management applications such as HP Insight Manager and can generate alarm notifications if significant changes occur in the fault or performance aspects of system operation. Information is delivered to and from the Management Agents for Servers via the industry-standard Simple Network Management Protocol (SNMP).

HP Insight Manager 7

HP Insight Manager delivers intelligent monitoring and alerting as well as visual control of your HP hardware. In the unlikely event of a hardware failure, Insight Manager 7 also provides a full complement of remote maintenance and control facilities.

NOTE: To install Insight Manager 7 on the management console, refer to the *HP Insight Manager 7 User Guide*.

Installation Instructions

Installing the HP Insight Management Agents

The following is a list of Microsoft® Windows® services that will be installed:

- HP Insight Foundation Agents
- HP Insight Web Agents
- HP Insight Event Notifier
- HP Insight Server Agents
- HP Insight Storage Agents
- HP Insight NIC Agents
- HP Insight Management Service
- HP Insight MCA Monitor Service

System Requirements and Pre-installation

HP Insight Management Agents for Windows is supported on HP Integrity servers. HP Integrity servers require the hardware and software described in the table below.

Table 2: System Requirements

Operating System	Microsoft Windows Server 2003 Enterprise Edition/Datacenter Edition
Browser	Microsoft Internet Explorer 5.5 or later Netscape 7.1, Mozilla 1.4 or later
Device Drivers	HP Smart Setup media (contains the HP-specific device drivers) The agents require the StorageWorks MSA1000 driver and the HP Baseboard Management Controller Interface driver. The former is available with the HBA driver or the Smart Setup CD. The latter is bundled with the Agents.
Disk Space	Installation of all agents requires at least 30 MB of disk space for the entire package.
SNMP	Installation of the SNMP service must be done before the HP Insight Management Agents for Servers for Windows are installed.

Memory Usage by the HP Insight Management Agents for Servers for Windows

The following table shows the approximate memory usage of the HP Management Agents for Windows on a minimum configuration system. The usage is broken up into the different functional services. The growth in memory usage depends on many factors, like the number of drives added to the array, the capacity of the drives, the condition of the drives, and the configuration of the logical drives.

Table 3: Table

Service	Description	Process Memory Usage (MB)
CpqWebMgmt	HP Insight Web Agent	12
CpqNicMgmt	HP Insight NIC Agent	9
CqMgHost	HP Insight Foundation Agent	16
CqMgServ	HP Insight Server Agent	9
CqMgStor	HP Insight Storage Agent	6
CIMNTFY	Windows Event Notifier	3
Asrsvc	HP Insight Management Automatic System Recovery Service	4.5
Hpesysvc	HP Insight Management Event Synchronization Service	6
Hpevtsvc	HP Insight Management Windows Event Service	7
Hpler	HP Insight Management Windows Loopback Event Receiver	8
Hplersvc	HP Insight Management Windows Loopback Event Receiver Service	2.4
Hmpsvc	HP Insight Management Processor Service	5.5
Hpmgtsvc	HP Insight Management Service	3.0
HpMcaLog	HP Insight MCA Monitor Service	9.5
SNMP		17.0
HppfmSvc	PreFailure Monitoring Services	5.5
Agent Total		100.4

The HP Insight Storage Agent will show significant growth when storage boxes are added. The HP Insight Storage Agent grows approximately 50 KB per box. For example, if you add a StorageWorks 4300 with two full storage boxes, you can expect the memory usage to grow by about 100 KB.

Overview of Management Agents for HP Integrity Servers

Components of HP Insight Management Agents for HP Integrity Servers

The HP Insight Management Agents require the **HP Baseboard Management Controller Interface driver** to be installed. The device driver will automatically be installed when the agents are installed. The device driver also referred to as the health driver (Hphlth.sys) can also be found on the HP Smart Setup media.

The HP Insight Management Agents may also require the **Compaq StorageWorks MSA1000** driver to be installed. The device driver must be installed separately and is located on the SmartSetup CD or with the HBA driver. The driver is identified by the file fcac.sys

Component Description

HP Insight Foundation Agents Service (CQMGHOST.EXE and supporting DLLs)

This component runs as a software service under Microsoft Windows. The service collects information for the host, software version, and external MIB status, at periodic intervals and makes the collected data available to the HP SNMP Agent. It also provides threshold support and SNMP alerts. The HP Insight Foundation Agents Service includes the following agents:

- Host Information Agent
- Threshold Support Agent
- Software Version Information Agent
- Clustering Information Agent

HP Insight NIC Agents Service (CPQNIMGT.EXE and supporting DLLs)

This component runs as a software service under Microsoft Windows. The service collects information from network interface controllers at periodic intervals and makes the collected data available to the HP SNMP agent. It also provides SNMP alerts. The HP Insight NIC Agents Service includes the following agent:

- NIC Information Agent

HP Insight Server Agents Service (CQMGSERV.EXE and supporting DLLs)

This component runs as a software service under Microsoft Windows. The service collects information from the system and the Baseboard Management Integrated Controller at periodic intervals and makes the collected data available to the HP SNMP agent. It also provides SNMP alerts. The HP Insight Server Agents Service includes the following agent:

- System Information Agent

HP Insight Storage Agents Service (CQMGSTOR.EXE and supporting DLLs)

This component runs as a software service under Microsoft Windows. The service collects information from fibre channel, drive array, and SCSI subsystems at periodic intervals and makes the collected data available to the HP SNMP agent. It also provides SNMP alerts. The HP Insight Storage Agents Service includes the following agents:

- Drive Array Information Agent
- Fibre Array Information Agent
- SCSI Information Agent

HP Insight Web Agent Service (CPQWGMT.EXE, supporting DLLs, and other supporting files)

This component runs as a software service under Microsoft Windows. The service converts SNMP information into HTML so that it can be viewed from a Web browser.

HP Insight Management Agents for Servers Control Panel (CPQMGMT.CPL)

This component allows you to modify the configuration for the HP Insight Server Management Agents.

HP Insight Event Notifier (CIMNTFY.EXE)

This component provides the ability for anyone with an e-mail address to be notified of specific HP Insight Server Management Agent Events by way of electronic mail. It requires Microsoft Windows Server 2003 or above. The TCP/IP networking protocol must be installed and configured on the system, and the system must be connected to a Simple Mail Transfer Protocol (SMTP) mail server at all times.

HP Insight Management Service (HPMGTSVC.EXE)

This component runs as a software service. It consists of several sub-services that provide the following:

- A heartbeat service to monitor the health of the system
- Collects historical data to predict potential component failures and warns the user through SNMP traps
- Establishes the relationship between the server and the Management Processor
- Logs events in the SEL (System Event Log) to Windows Event Log and send them as SNMP Alarms.
- Supported third-party generated SNMP Alarms will be written to SEL.
- Enables Web based SEL event monitoring and to perform certain actions on SEL, like clearing the SEL and marking the events repaired.
- Predictive failure monitoring of certain system devices and generates SNMP traps.
- Provide Automatic Server Recovery (ASR) functionality.

HP Insight MCA Monitor (HPMCALOG.EXE)

This component runs as a software service under Microsoft Windows. The service monitors HP Integrity servers for machine checks. Machine checks are a mechanism for hardware and firmware to report events in the Itanium systems. HpMcaLog gathers and maintains a log of the machine check reports that have occurred, for use by service and support personnel.

IMPORTANT: The version of Insight Manager 7 installed on the management console must be version 7 SP2 or higher. If you are running a previous version of Windows NT Management in Insight Manager 7, you must have version 3.2.07 or higher for all components to be installed.

Pre-installation of TCP/IP and SNMP

TCP/IP and SNMP must be installed on your system before you install the Management Agents for Servers.

NOTE: HP requires that you install SNMP services in order to take full advantage of the management capabilities provided with your HP Integrity server. Failing to install SNMP will prevent the Insight Manager 7 and other enterprise management applications from receiving hardware pre-failure alerts and will disable Insight Manager functions such as advanced HP Integrity status polling, inventory reporting, and version control.

NOTE: For Windows Server 2003, SNMP is included in the base product and is installed by default if the re-installation media is used to install Windows. If the SNMP service is uninstalled after the agents are installed, the agents will need to be uninstalled and installed again.

TCP/IP, SNMP for Windows Server 2003

TCP/IP support

TCP/IP support is included in the Windows Server 2003 product. You can install the TCP/IP protocol by selecting **Network Connections**. Right-click on the **Local Area Connection** icon and select **Properties**. Select the **TCP/IP** option. Refer to your Windows Server 2003 documentation for further instructions.

SNMP support

SNMP support is included in the Windows Server 2003 product.

Installing SNMP

You can install the SNMP service by selecting **Start>Settings>Control Panel**. Click **Add or Remove Programs**. Click **Add/Remove Windows Components**. From the Windows Components Window wizard, select **Management and Monitoring Tools**. Click **Next**. From the Management and Monitoring Tools window, select **Simple Network Management Protocol**. Click **OK**. This will take you back to the Component Wizard Page. Click **OK** on the component Wizard that will start the installation. Refer to your Windows Server 2003 documentation for further instructions.

Configuring SNMP for Windows Server 2003

Go to **Services**, select **SNMP service** properties by double clicking on **service name**. Select the **Security** tab and click **Add** on the Security Tab window to add the community string. Select a name for the string and access rights. Click **Apply** and **OK**.

Installing the Agents from the HP Smart Setup media

1. Insert the HP Smart Setup media into the CD-ROM drive. The Smart Setup media autorun menu will load.
2. Follow the on-screen instructions. Navigate through the screens to locate the Insight Agents package for your server model. Start the setup program and a screen similar to the one below will appear.

NOTE: If you already have a previous version (2.0) of the Insight Agents installed and you want to install a newer version (i.e. 2.0.1), please continue to follow the instructions given below. The software will automatically be upgraded.

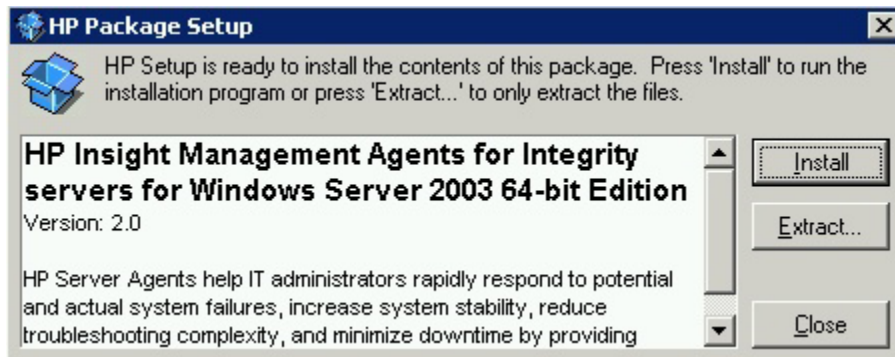


Figure 1: HP Package Setup

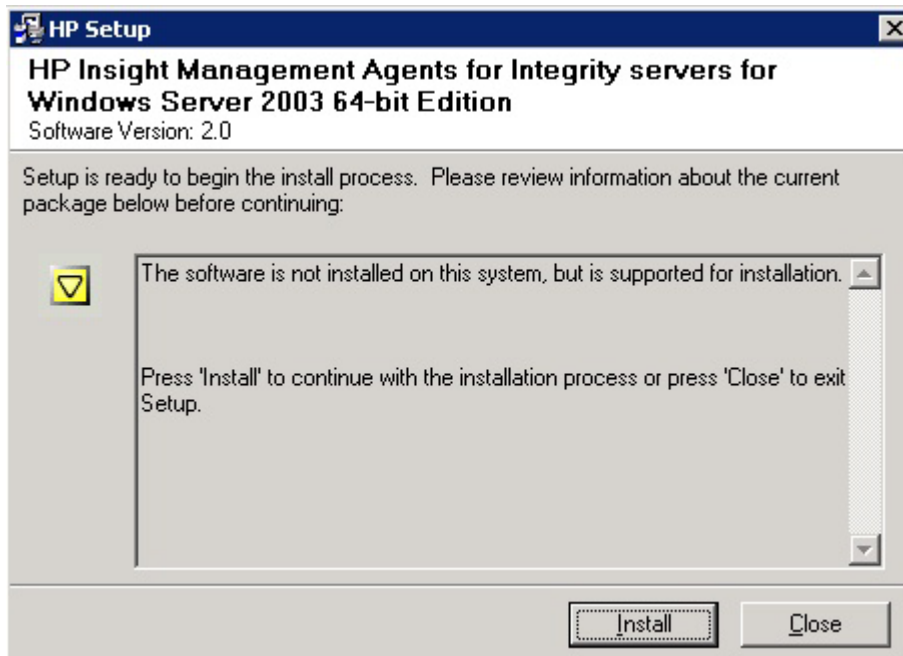


Figure 2: HP Setup

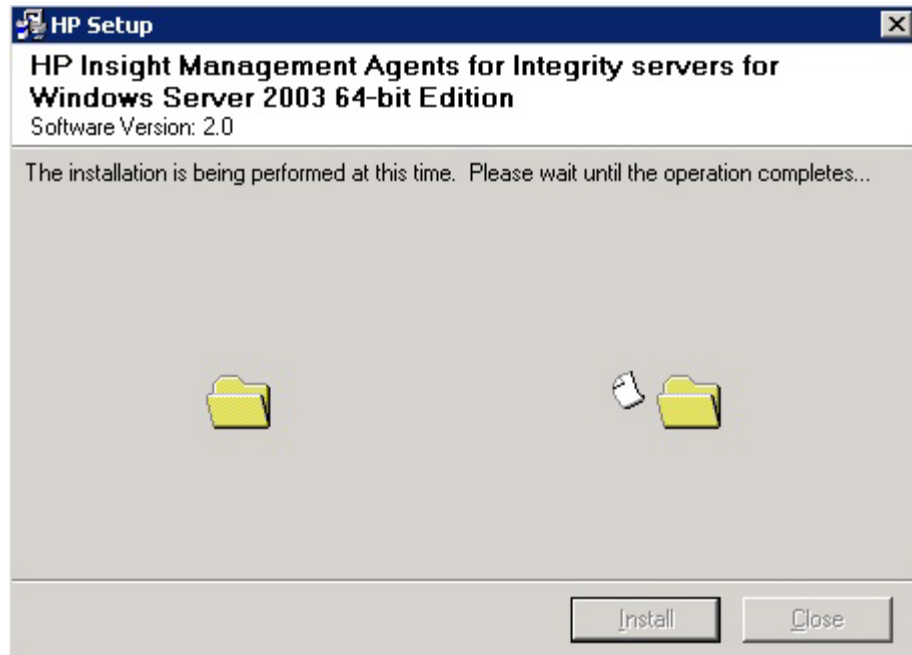


Figure 3: HP Setup

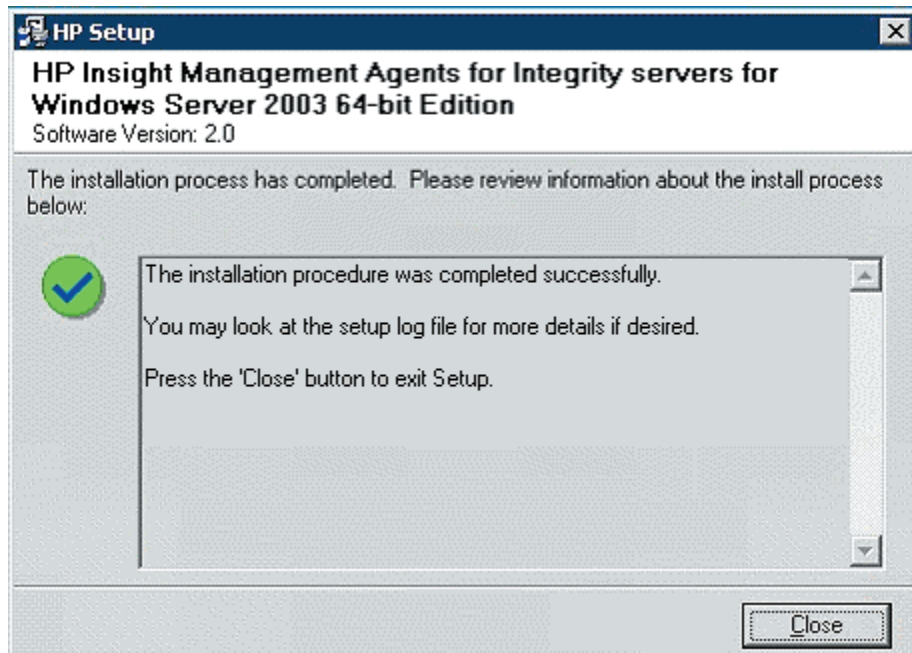


Figure 4: HP Setup

Command Line Syntax

The general command line syntax for single component installation is:

```
cp003995.exe /s [/s[ilent]] [/f[orce]] [/r[eboot]] [/h[elp]] [/?]
```

Where `cp003995.exe` is the filename of the Smart Component.

NOTE: All arguments and information enclosed in brackets are optional. Refer to the “Command Line Arguments” section for a full description of the arguments the Smart Components accept.

NOTE: The Smart Component file name is an example. The correct smart component file name is provided in the Smart Setup DVD.

If no command line arguments are passed on the command line, the component graphical user interface (GUI) is displayed. A log file is written to

```
%SystemRoot%\syswow64\cpqmgmt\HP_Insight_Management_Agents_install.log
```

during all installations for debugging purposes.

Command Line Arguments

The following table lists the arguments recognized by Smart Components.

Table 4: Command Line Arguments

Command Line Argument	Description
/h[elp]	Displays command line Help information.
/?	Identical to the /help argument.
/s[ilent]	Specifies whether the GUI is suppressed or displayed. Use this argument when scripting the Smart Components to suppress the GUI. If this argument is omitted from the command line, the GUI is displayed.
/f[orce]	When used with the /silent command, installs component in the following way: If the component is already installed and current, it will reinstall itself and the installed version number will remain the same. If this argument is omitted from the command line, the installation is not forced.

`/r[eboot]`

When used with the `/silent` command, causes the target system to reboot if the installation requires a reboot to complete installation. If this argument is omitted from the command line, the server must be rebooted manually for the installation to take effect.

The reboot will only take place if no installation errors occur.

Command Line Examples

The following table lists examples of command line input for single component installation.

NOTE: Although lowercase letters are used in these examples, either uppercase or lowercase letters can be used.

Table 5: Examples of Single Component Installations

Command Line Input	Result
<code>cp002575</code>	This command line starts installation of the CP002575.EXE component.
<code>cp002575 /s</code>	This command line installs the CP002575.EXE component on the target server using the defaults of the component. The GUI is not displayed.
<code>cp002575 /s /f /r</code>	This command line installs the CP002575.EXE component, forcing the component to install over an existing version and allowing the server to reboot automatically if needed. The GUI is not displayed.

Return Codes

When each Smart Component has finished running, the component reports a return code to the operating system or the calling application.

These return codes are used to determine the status of the component installation. You can also use return codes in a script to control the execution of the script and to determine any branching that is required. The following table summarizes the Smart Component return codes.

Table 6: Return Codes

Error Level	Meaning
0	The Smart Component failed to install. Refer to the log file for more details.
1	The Smart Component installed successfully.
2	The Smart Component installed successfully, but the system must be restarted.
3	The installation was not attempted because the required hardware was not present or the software was current.

Configuring the HP Event Notifier

To start the **Event Notifier Configuration Wizard**, go to **Programs** from **Start menu** and click **Event Notifier Configuration Wizard** from the sub menu under **HP Insight Management Agents** item. Use the configuration wizard to completely configure the notification service. The wizard displays the following three topics to guide you easily through the process:

1. Welcome to the HP Event Notifier Configuration Wizard
2. Mail (SMTP) Server Information
3. Event Recipients Information



Figure 5: Welcome Message



Mail (SMTP) Server Information

Step 1: In this step, you will enter the name of the outgoing Simple Mail Transfer Protocol(SMTP) mail server.

Enter the required name of the mail server and the optional reply address. The reply address is the e-mail address where you would like to receive any undeliverable mail messages.

From address:

Mail server:

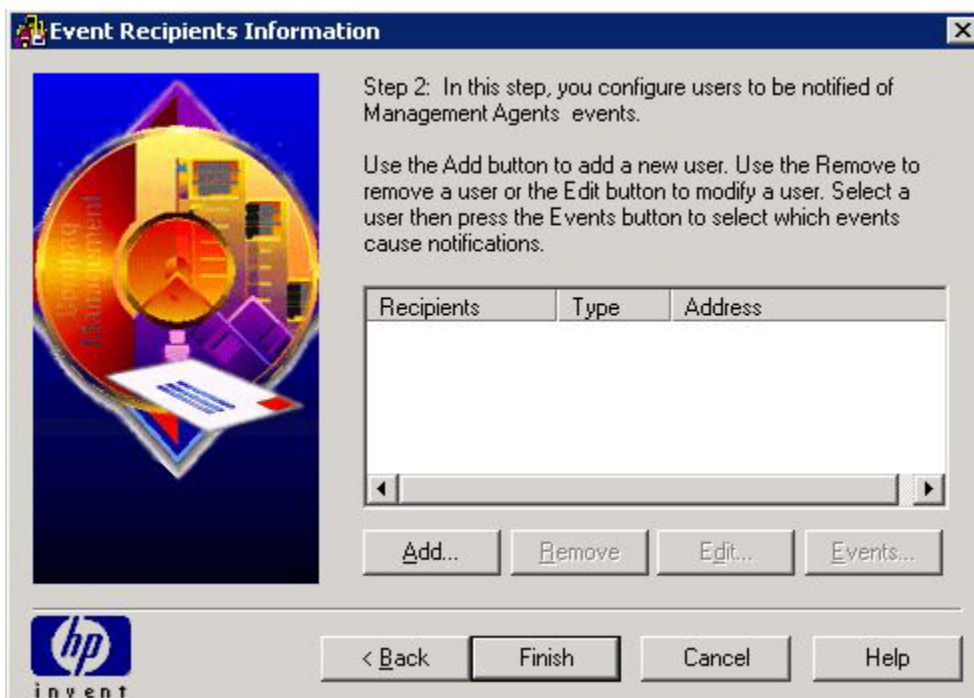
Reply address:

Click 'Next' to configure notification recipients.

hp invent

< Back Next > Cancel Help

Figure 6: Mail (SMTP) Server Information



Event Recipients Information

Step 2: In this step, you configure users to be notified of Management Agents' events.

Use the Add button to add a new user. Use the Remove to remove a user or the Edit button to modify a user. Select a user then press the Events button to select which events cause notifications.

Recipients	Type	Address

Add... Remove Edit... Events...

hp invent

< Back Finish Cancel Help

Figure 7: Event Recipients Information

Uninstalling HP Insight Management Agents

NOTE: You must be logged into Windows as an administrator before uninstalling the Management Agents.

To uninstall the HP Insight Management Agents for Servers for Windows, select **HP Insight Management Agents** from the installed software list.

1. Click the **Start** menu, select **Control Panel**, then open the **Add/Remove Programs** applet.
2. Select **Change/Remove** in the HP Insight Management Agents item from the installed software list.
3. Click **OK** to remove the agents.
4. Click **Finish** on the last dialog box.

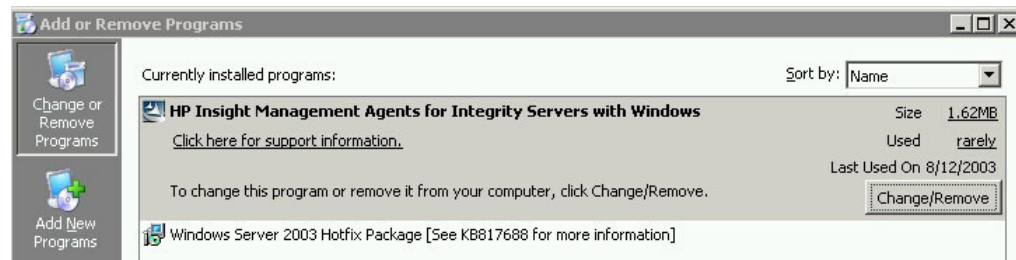


Figure 8: Add or Remove Programs

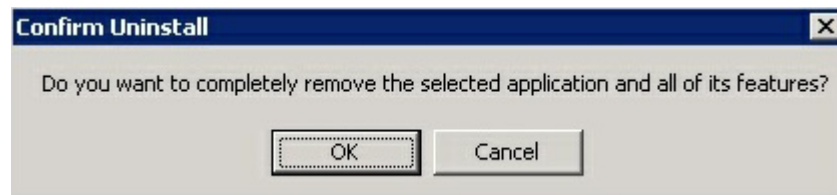


Figure 9: Confirm Uninstall

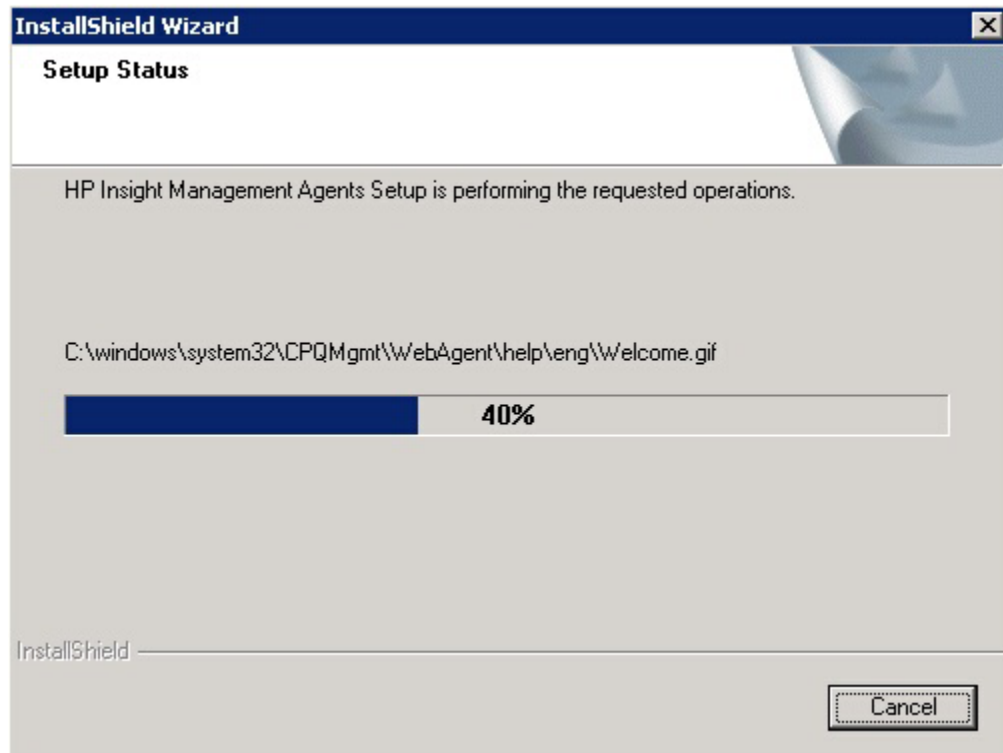


Figure 10: InstallShield Wizard

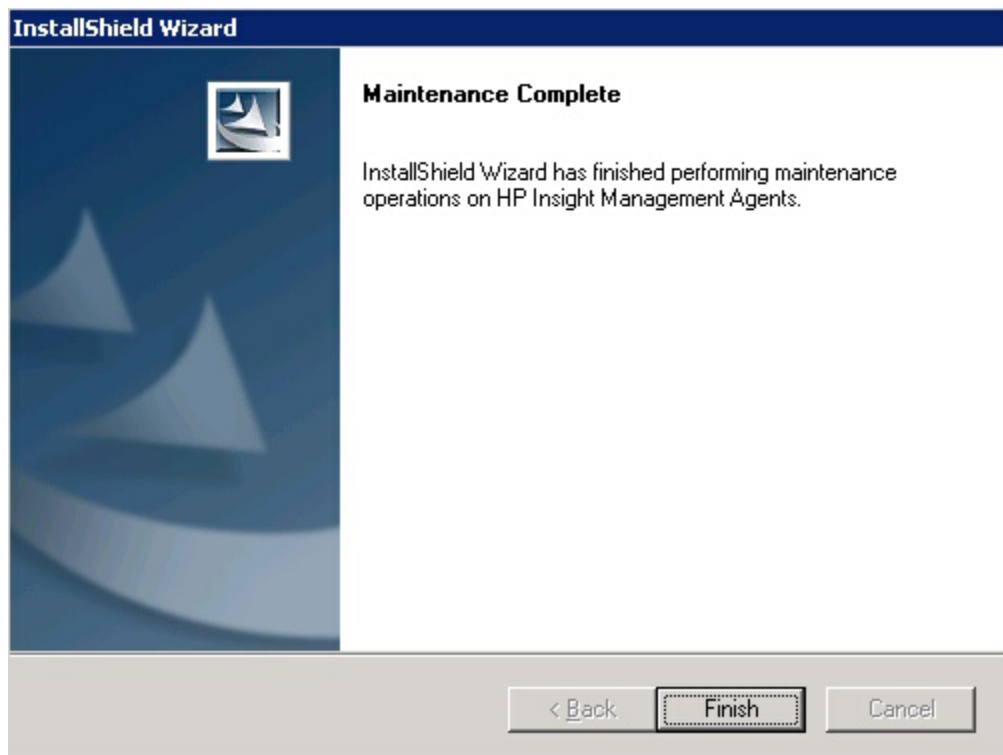


Figure 11: InstallShield Wizard Maintenance Complete

Accessing HP Web-enabled Management Agents from a Browser

The Web-enabled HP Insight Management Agents for Servers allow you to view subsystem and status information from a Web browser, either locally or remotely. This is only supported in 32-bit versions because there is no JVM for Windows 64-bit versions. While this limits the functionality, a customer may still access “WebAgents” from the 64-bit platform and get limited functionality.

To view data locally, use the URL:

```
http://127.0.0.1:2301/  
http://localhost:2301/
```

NOTE: You may view the HP Web-Enabled Management Agents locally on Windows on the HP Integrity servers, however, some functionality will be unavailable. Any functionality that requires the Java Virtual Machine (JVM) will appear as an outlined box with a red x in the upper left corner. Currently, there is no JVM available for Windows on the HP Integrity servers. For full functionality, access the HP Web-Enabled Management Agents remotely.

To view data remotely, use the URL:

```
http://machine:2301/
```

Where machine is the IP address or the computer name under DNS.

NOTE: Notice that the URL is followed by :2301. This is the port or socket number that the Web-enabled Management Agents for Servers use to communicate with the browser. If this number is not specified, your browser might attempt to connect to another Web page if the managed server is running a Web Server.

After you enter the URL, the Device Home Page appears.

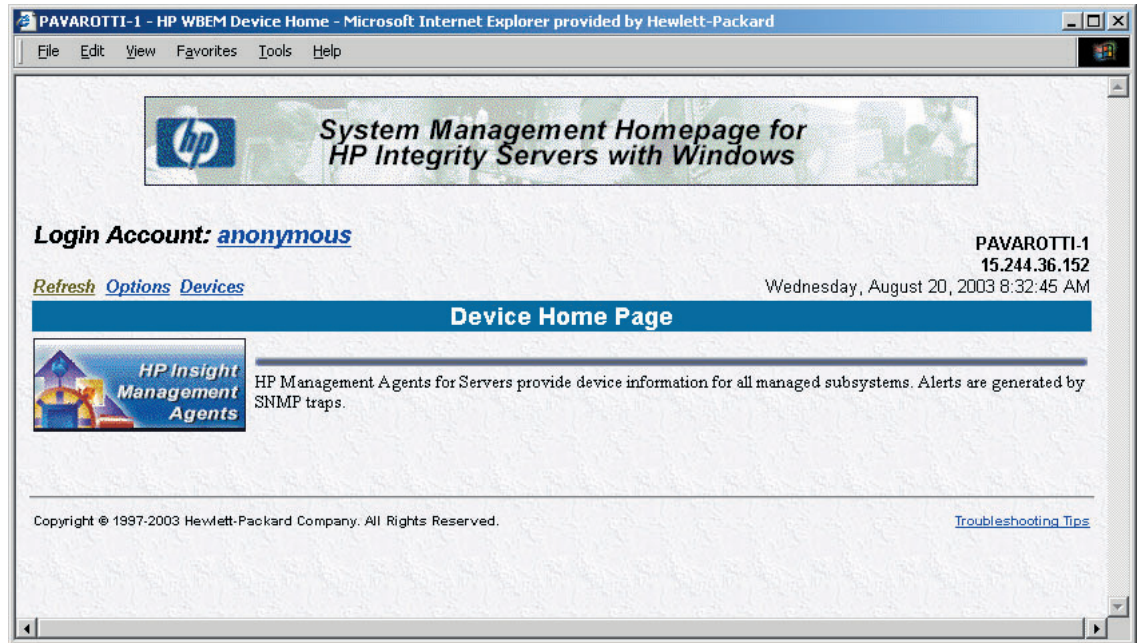


Figure 12: Device Home Page

Device Home Page

The Device Home Page is the first page displayed when you access the device at port 2301. This page displays available HP Web-enabled services. Anonymous access to information is available without logging in when the Device Home Page is launched for the first time. To log in as a different user, select the Anonymous Link. The login screen displays. See the Security section in later in this document for more information about user accounts.

The following options are available on the Device Home Page:

- **HP Insight Management Agents**—Select this link to view Subsystem and Status Information about a device that is running HP Insight Management Agents for Servers.
- **Refresh**—Select this link to reload the Device Home Page.
- **Options**—Select this link to set attributes for the device.
- **Devices**—Select this link to display the Device List.
- **Logout**—Select this link to log out from the Device Home Page.

Browser Requirements

The minimum browser requirements include support for tables, frames, Java, JavaScript, and Java Development Kit (JDK) 1.1.

Additional browsers, or the browsers mentioned used with different operating systems, may or may not work correctly, depending upon their specific implementations of the required browser technologies. The browser requirements are TCP/IP and are listed in the table below.

Table 7: Browser Requirements

To View Systems Running	Browser Requirements
Windows Server 2003 (64-bit)	Microsoft Internet Explorer 5.5 or later
	Netscape 7.1 or later
	Mozilla 1.4 or later

The Sun JVM (Version 1.3.1_02) may be obtained directly from the Management CD-ROM produced by HP. The Management CD-ROM is shipped with all ProLiant servers, HP Integrity servers with Windows, and many different server options. The JVM is located in the directory <cd>\INSIGHT7\JVM\ and is a single installable package. This version of the JVM is qualified for Insight Manager 7 and the web enabled management software installed on HP devices. In addition, you can obtain a subscription to the Management CD-ROM in order to have the latest available software delivered directly to you. For subscription information, refer to www.hp.com/manage.

IMPORTANT: You must turn on the following options for the Management Agents for Servers to work properly. Go to Tools->Internet Options->Security then set the security level preferably from low to medium.

- Enable Java
- Enable JavaScript
- Accept all cookies

Security

The Web-enabled HP Insight Management Agents for Servers for Microsoft Windows Server 2003 allows SNMP sets for some system parameters. This capability requires security that includes three predefined users and the passwords defined in the following table.

Table 8: Security

Account	User Name	Password
anonymous	anonymous	
user	user	public
operator	operator	operator
administrator	administrator	administrator

NOTE: These are the only user accounts available in this release, and they cannot be changed except for the password.

Anonymous access to information is available without logging in when the Device Home Page is launched for the first time.

Within the webagent.ini file you will find the following 3 lines:

```
[Default]
read=1
write=0
```

The authorization for various user levels is defined in webagent.ini file which is located in %SystemRoot%\system32\CPQMgmt\WebAgent. These values control the authorizations for the various user levels. The value of "read" will determine the level of user login required to retrieve information. The value corresponds to the following:

1. anonymous
2. user
3. operator
4. administrator

For example, if you wanted to prohibit anonymous login, you should use the following settings:

```
[Default]
read=2
write=0
```

Currently, the only writes available for HP Integrity Servers are SNMP sets for thresholds and the event repair in the partition specific System Event Log. Because of various safeguards written into the software, an operator or an administrator may only perform these operations. The value of write is effectively ignored.

The Web-enabled Management Agents for Servers service must be stopped and restarted for any changes to take effect. Do not modify anything except the read/write levels to change the security.

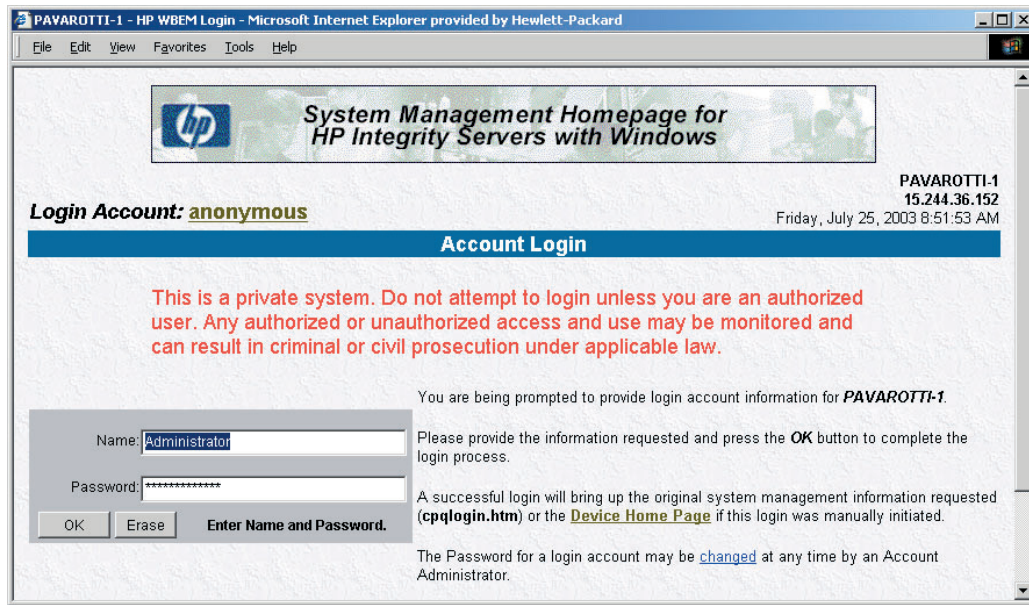


Figure 13: Login page

Viewing Subsystem and Status Information

Select HP Insight Management Agents from the Device Home Page to view subsystem and status information for the device. This section describes how to navigate through the management information.

The date and time displayed at the top of the page shows the local time the page was last received by your Web browser. To refresh this frame, select the refresh link at the top of the page.

Title Frame

The Title Frame, located in the upper-left corner of the browser window, displays the following links.


- **Agent Help**—Use this link to navigate to this help page.
- **Summary**—Use this link to quickly navigate back to the list of degraded or failed components on the Summary Page.
- **Device Home**—Use this link to return to the Device Home Page.
- **Options**—Use this link to go to the Options Page and set options for Display Mode (frames or no frames), Help icons, and Auto Refresh intervals.


Summary Page

The first Summary page displays the device name, type, contact information, location, and IP address, as well as a list of failed or degraded items. To view detailed information about a failed or degraded item, click on the item.

The colored ball and square icons next to the individual items in the list below indicate the status of each item.

Device Status

 Device status is unknown.

 Device status is OK.

 Device status is degraded.

 Device status is failed.

NOTE: In the no Frames version of this software, the Summary page fills the entire browser window. Each subsequent page has the equivalent of the contents of the Title Frame at the top with links to Help, Summary, Device, Home, and Options pages. The Summary page in the no-frames version displays all device categories and items within each category are sorted by status. To view detailed information about an item, click on the item.

Navigation Frame

The Navigation Frame, located below the Title Frame on the left side of the browser window, lists all of the subsystems with components that are available for the devices.

The colored ball and square icons next to the various items in the list indicate the status of those items. A legend for the colored balls is displayed at the bottom of the frame. Select a component in the left frame to display detailed information about it in the right frame.

Data Frame

The Data Frame comprises the remainder of the browser window and displays detailed information about the selected items. This window also displays the Summary Page when the Summary option is selected from the Title Frame.

NOTE: Some items may split the Data Frame into subframes that follow the same organizational structure as the main frame with navigation data in a subframe on the left and detailed information in a subframe on the right.

Using Management Agents for Servers

Using HP Insight Management Agents for Servers

The following services installed under the Windows Operating System are part of the HP Insight Management Agents for Servers package. You can start and stop services by using the Services Control Panel window under the Control Panel of Windows. By default, the Management Agents for Servers start automatically when you start Windows except for the HP Insight Event Notifier which is disabled by default. The service names and initial states shown in the Services window are:

Table 9: Service Names and Startup Type

Name	Status	Startup Type
HP Insight Event Notifier		Disabled
HP Insight Server Agent	Started	Automatic
HP Insight NIC Agent	Started	Automatic
HP Insight Storage Agents	Started	Automatic
HP Insight Foundation Agent	Started	Automatic
HP Insight Web Agent	Started	Automatic
HP Insight MCA Monitor	Started	Automatic
HP Insight Management Service	Started	Automatic

The collection period for the Management Agents for Servers can be configured from the HP Management Agents Control Panel.

Foundation Agents

Host Information

The Host Information Agent collects file system, system processor utilization, and running program information from the system.

Threshold Support

The Threshold Support Agent allows a management application, such as HP Insight Manager, to set user-definable alarms on monitored items. For example, a management console can monitor the system processor utilization or file system utilization.

The Threshold Support Agent periodically checks the monitored item. When the monitored item crosses the threshold defined in the management application, the Threshold Support Agent sends an alarm, or trap, to the management console.

Software Version Information

The Version Control Information Agent collects information about the versions of HP support software installed on your machine.

Clustering Information Agent

For machines that are members of a cluster, the Clustering Information Agent collects information about the cluster.

NIC Agents

NIC Information

The Network Interface Controller (NIC) Information Agent collects performance and configuration information about installed network adapters at a configurable interval.

Server Agents

Hardware Information

The Server Agent displays the hardware configuration information of a system. On a cellular system, information collected includes cabinets, partitions, cells and I/O chassis configuration. On all systems, it collects information about the memory, IRQ and I/O resources being used, and automatic system recovery configuration.

Monitoring and Traps

The Server Agents collect status and configuration information about the system such as processor status, memory status, sensor and environmental status, etc.

Storage Agents

SCSI Agent

The SCSI Information Agent collects fault, performance, and configuration information of the HP supported SCSI controllers and attached SCSI and Tape storage devices at a configurable interval.

Drive Array Information

The Drive Array Information Agent collects fault, performance, and configuration information from HP drive arrays at a configurable interval.

Fibre Array Information

The Fibre Array Information Agent collects fault and configuration information from the HP Fibre Channel Array subsystem at a configurable interval.

Event Notifier

Event Notifier provides robust monitoring and notification service capabilities in IT environments with a limited number of servers. It forwards alarms via e-mail using SMTP. The administrator can receive alerts even when the management application is not available.

Predictive Failure Monitor (PFM) Service

The Predictive Failure Monitor is responsible for generating special pre-failure events in the event log and SNMP trap about certain system devices. It does that by monitoring the system event log on HP systems for specific events, counting them and comparing the number of events with pre-configured thresholds. This version of the PFM service monitors only single-bit memory ECC errors reported by the firmware.

HP Insight Management Service

HP Insight Management Service manages the Event Subsystem. This has other sub services. The Event Synchronization Service maintains a log, which is always kept synchronized with SEL (system event log). The Loop Back Event Restore Service captures the supported third party generated SNMP Alarms and writes back to the SEL. The Event Service logs all the events in the SEL to the Windows Event log and generates corresponding SNMP alarms. The Event Agent enables Web based SEL event monitoring and to perform certain actions on SEL, like clearing the SEL and marking the events repaired. When the SEL is almost full, it backs up the SEL and clears the SEL automatically. The Predictive Failure monitoring service monitors certain events and their occurrence frequency, when exceeded the threshold limits it generates special predictive failure events and SNMP alarms.

Entity Agent

This is a SNMP agent that establishes the relationship between manageable devices to the HP Integrity servers they are installed in. Currently, it applies to the Management Processor card.

Management Agents for Servers for Windows Control Panel

The Management Agents for Servers for Windows Control Panel is available by selecting the HP Management Agents icon from the Windows Control Panel. Not all tabs shown in the following screens will be available on all servers.

IMPORTANT: You must have Administrator rights to access the Management Agents for Servers for Windows Control Panel.

Services Tab Screen

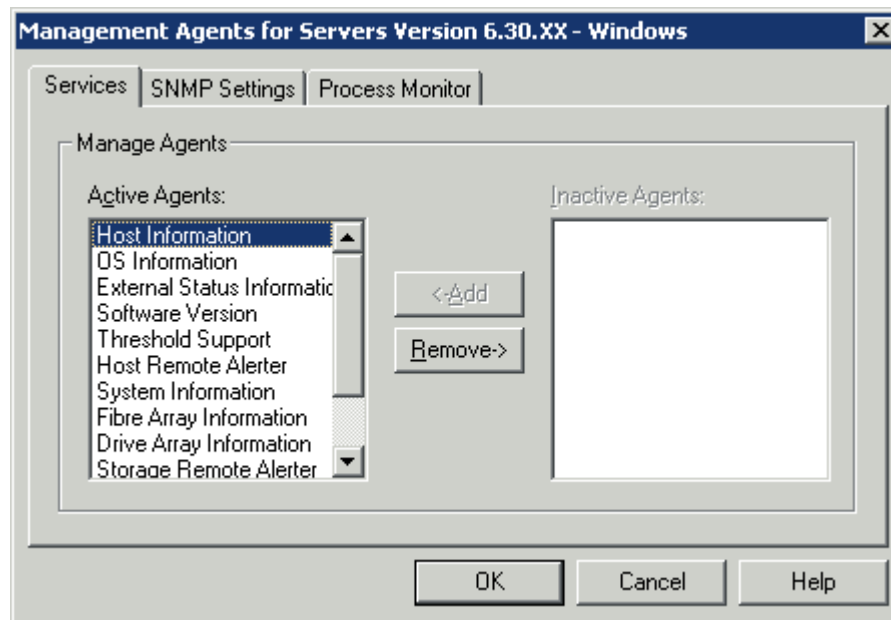


Figure 14: Services Tab Screen

The Services tab allows you to activate or deactivate management agents. Agents can be added or removed by highlighting the agent and clicking the appropriate button.

SNMP Settings Tab Screen

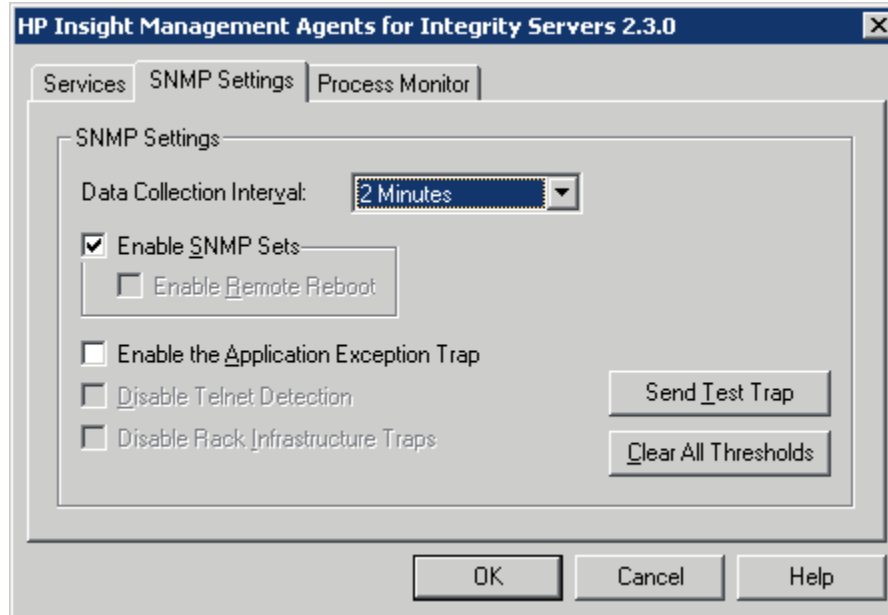


Figure 15: SNMP Settings Tab Screen

The SNMP Settings tab allows you to:

- **Set the Data Collection Interval**—Controls the interval at which the Management Agents for Servers collect data. Set the time interval for data collection by selecting an interval from the drop-down menu.
- **Enable SNMP Sets**—Allows a management console to modify a limited number of hardware-related parameters. The Insight MIBs define the monitored items that may be modified by the management console.
- **Enable Remote Reboot**—This feature is not supported on HP Integrity servers.
- **Enable the Application Exception Trap**— On IPF Systems, this is not supported. This will be supported in a future release. For the current release, selecting this will change the windows default exception handler, e.g, Dr Watson Debugger will not be invoked in case of application exceptions.

NOTE: To view the exception traps in HP Insight Manager, set the SNMP trap destination to the address of your management console

- **Disable Telnet Detection**—This feature is not supported on HP Integrity servers.
- **Disable Rack Infrastructure Traps**—This feature is not supported on HP Integrity servers.
- **Send Test Trap**—Allows a test SNMP trap to be sent to the management console. This is a useful feature to test the setup of the Management Agents for Servers and SNMP.
- **Clear All Thresholds**—Allows you to clear all defined thresholds for the device on which the Management Agent for Servers is running.

Process Monitor Tab Screen

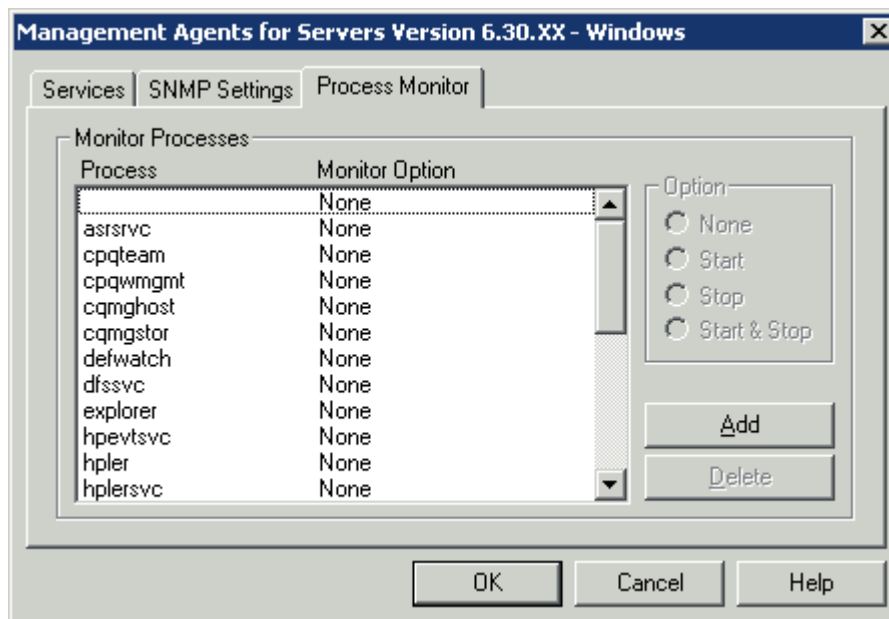


Figure 16: Process Monitor Tab Screen

The Process Monitor tab screen allows you to have SNMP traps generated when a process starts, stops, or both. This screen displays a list of processes that are currently running. The following Process Monitor options are available:

- **Select Monitoring Operations**—Select a process from the list to set monitoring options for that process. The following options are available:
 - **None**—No SNMP traps are generated for this process.
 - **Start**—An SNMP trap is generated when this process starts.
 - **Stop**—An SNMP trap is generated when this process stops.
 - **Start & Stop**—An SNMP trap is generated when this process starts or stops.
- **Adding a New Process**—Select **Add** to add a new process to the monitor. Enter the name of the new process, then select **Apply** to add the process.
- **Deleting a Process**—Highlight a process in the list, and select **Delete** to delete the process.

NOTE: You can only delete processes that have been created by a user. The **Delete** button is disabled for system default processes.

Sending SNMP Traps/Alarms to Management Applications for Windows Server 2003

HP Insight Management Agents for Servers generates traps or alarms when a significant event occurs on the system. To ensure that your management application can notify you, you must configure the SNMP service to include the IP address of the management console.

To configure the SNMP service for Windows Server 2003:

1. From the Start menu, select Programs>Administrative Tools>Services.
2. From the list, double-click **SNMP Service**.
3. Select the **Traps** tab.
4. In the Community Names field, enter a community name string. If a community name already exists, select it. If one does not exist, type **public** in the Community Names field and select **Add**.

NOTE: The default community string for HP Insight Manager is "public." If you enter a different community string here, you must also enter it on the management console that is responsible for the system. To change the community string (community strings are case-sensitive) in HP Insight Manager, refer to the *HP Insight Manager User Guide* section, "Setting Up SNMP Community Strings." It is recommended not to use the name "public" because it is the default name and commonly used. This may lead to decreased security.

5. Under the Trap Destinations list, click **Add**. In the IP Host/Address or IPX Address box, type the IP address of the management console. This address identifies the management console to receive the alert when the Server Agents detect a significant event.
6. Ensure that 127.0.0.1 is listed as a trap destination.
7. Click **Add**, then **OK**.

Configuring Automatic System Recovery (Autorecovery)

The ASR (Automatic System Recovery) feature provides an automated method to restart the system in case an unstable state of the OS is detected such as a system hang. While the system is continuously monitored and an unstable state exceeds a user configurable time (timeout), the system automatically restarts to recover from this condition. The ASR feature can be configured in two different ways: by using a command line tool called `asruser.exe` or through the SNMP by setting some specific OIDs.

To enable ASR:

1. Using Windows file explorer, double click the following file to edit it:
`%systemroot%\system32\cpqmgmt\cqmgsserv\hpmgtsvc.ini`
2. Remove the semicolon (;) before the line `ASR=asrsrvc.exe`.
3. Save and close the file.
4. Click **Start>Programs>Administrative Tools>Services**.
5. Right-click **HP Insight Management Service** and click **Restart**.

-
6. To disable ASR, add a semicolon (;) at the beginning of the line, `ASR=asrsrv.exe`, in the file mentioned in step 2 above, then restart HP Insight Management Service.

To enable ASR using SNMP:

1. Set OID 1.3.6.1.4.1.232.6.2.5.1 to 4.
2. Click **Start>Programs>Administrative Tools>Services**.
3. Right-click **HP Insight Management Service** and click **Restart**.

To disable ASR, execute the same steps above, but in step one, set the OID to 3 instead of 4.

ASR is configured by default for timeout of 10 minutes, polling time of 30 seconds and maximum restart count of 100 seconds. The user may change those default values by following the steps below:

To configure the ASR:

1. Open a command prompt on the managed system. From the Start menu, select **run**, type **cmd**, and then press **ENTER**.
2. Change the directory to `c:\windows\system32\cpqmgmt\cqmgserver`, by typing **cd \windows\system32\cpqmgmt\cqmgserver**, and then press **Enter**.
3. Type **asruser**, and then press **Enter**. A description of the usage will be displayed.
4. Type **asruser -t**, and then press **Enter** to set the timeout value. This is the maximum time the detected unstable state will take to restart automatically.

NOTE: Alternatively you can also set OID .1.3.6.1.4.1.232.6.2.5.4 with the necessary timeout value in minutes.

1. Type **asruser -o**, and then press **Enter** to get the current timeout value.

NOTE: Alternatively you can also query OID .1.3.6.1.4.1.232.6.2.5.4 to get the current timeout value in minutes.

2. Type **asruser -p**, and then press **Enter** to set the polling time. This time indicates how often the system is being monitored for unstable states. The lower the value the more often the monitoring is performed.

NOTE: Alternatively you can also set OID .1.3.6.1.4.1.232.6.2.5.22 with the necessary polling time in seconds, which can vary from 1 to 60 seconds.

3. Type **asruser -k**, and then press **Enter** to find out how many consecutive automatic restart incidents have occurred.

NOTE: Alternatively you can also query OID .1.3.6.1.4.1.232.6.2.5.10 to get the number of automatic reboots since a manual reboot has occurred.

4. Type **asruser -m**, and then press **Enter** to set the maximum number of consecutive automatic restarts that will be allowed to occur.

NOTE: Alternatively you can also set OID .1.3.6.1.4.1.232.6.2.5.9 with the maximum number of consecutive automatic restarts that will be allowed to occur.

NOTE: If a system crashes that causes a memory dump of the kernel to occur, the ASR feature will be disabled to allow the crash dump to finish. A crash dump of the system memory could take several minutes for the kernel to write out to a file, depending on the memory configuration.

Troubleshooting

Insight Agents installer error 2324

Internal Error 2324. 2

`c:\windows\system32\cpqmgmt\webagent\cqmgstor\help\eng\hotplug.gif`

Workaround: If this error occurs during installation (the file name may be different), delete the entire `c:\windows\system32\cpqmgmt` folder and retry the installation.

Insight Agents Installer error 1923

Error 1923. Service HP Insight Server Agents could not be installed. Verify that you have sufficient privileges to install system services.

Workaround: If this error occurs, click **abort**, restart the OS, and retry the installation.

Insight Agents is not listed in the Add/Remove Programs control panel applet

1. Remove the {EC7403C2-B921-11D6-B3B7-0060B0872C9E} key from the registry
`HKLM\software\microsoft\windows\currentversion\uninstall`
2. Extract the agents package from the smart component.
3. Copy the agents package to the hard drive (do not run from the CD).
4. Rename `setup.ex_` to **setup.exe**
5. Remove `REINSTALLMODE=vamus REINSTALL=ALL` from `setup.ini`
6. Install the agent.
7. Uninstall the agent.
8. Put `REINSTALLMODE=vamus REINSTALL=ALL` back to `setup.ini`
9. Install again.

Error logged to System Event Log when system boots with network cable disconnected

Issue: When the system boots with a network card which does not have a LAN cable connected to it, the HP Insight NIC Agent service will log an error into the System Event Log. This is because the service has not detected a network connection. It cannot differentiate between a disconnected cable and a bad cable.

Workaround: Verify the cable connection. If the cable is disconnected intentionally, ignore the error.

Troubleshooting Overview

Troubleshooting topics for other problems for Windows are in the section HP Insight Manager Problems below.

As a preliminary troubleshooting step, always examine the Windows Event Log by starting the Event Viewer application. Management Agents for Servers and other installed software log significant events into the Windows Event Log, which may help in diagnosing a problem. Also, always install all HP drivers before installing the Management Agents for Servers.

HP Insight Manager Problems

Device Not Manageable

A black indicator is displayed for the device on the device list.

Solution:

1. Verify that the TCP/IP and SNMP services are installed and running under Windows. Check the Services control panel application for status.
2. Verify that HP Insight Management Agents for Servers is installed and running under Windows. Check the Services Control Panel application for “Insight Agents.”
3. Verify that the device community string matches the community string specified in HP Insight Manager. The device community string is located in the Networks Control Panel application under Configure SNMP Service. The HP Insight Manager community string is set in the Device Setup window from the management console (click **Device Setup** from the Task List window). For more information, refer to “Setting Up SNMP Community Strings” in the *HP Insight Manager 7 User Guide*.

NOTE: Community strings are case-sensitive.

4. Verify that network communications with HP Insight Manager are operational. Invoke the Windows **ping** command from an MS-DOS prompt.

A Majority of Buttons for the Device Are Disabled

The System Information Agent is not loaded.

Solution:

Open the HP Management Agents Control Panel by double-clicking the icon in the Windows Control Panel. Verify that the System Information Agent is located under the active Agents.

Missing Network Interface Controller Information

HP Insight Management Agents for Servers for Windows provides full information on Network Interface Controllers (NICs) if three conditions are met.

Solution:

1. The interface must be bound to the TCP/IP protocol stack. You can verify the NIC bindings by entering the **Bindings** section of the Network Control Panel application.
2. The interface cannot be bound to an intermediate driver (“virtual nic”) unless the intermediate driver is specifically supported by the HP NIC Agents. Examples of supported intermediate drivers are HP Network Fault Tolerant drivers.
3. To include all of the interface statistics, the NIC driver must support the optional NDIS Object IDs (OIDs) for management information. All HP controllers support these OIDs. For other controllers, contact your hardware vendor.

Missing Drive Array Physical Drive Information

The HP Drive Array device driver can provide full information on HP Drive Arrays only when the drives are properly initialized. All drives currently shipped with HP systems were initialized in the factory. However, if you replaced a drive due to a hardware failure or if you purchased the computer system before this service was provided, these drives might not be initialized.

Solution:

1. Shut down Windows from the **Start** menu by selecting **Shutdown** then **Restart**.
2. Run HP Diagnostics. If you do not have HP Diagnostics on the hard drive, create a HP Diagnostics diskette using Diskette Builder. Insert the HP Diagnostics diskette into the diskette drive of the monitored system, or run Diagnostics from the hard drive.
3. Restart the system.
4. At the Main Program menu, select the **Test Computer** option.
5. At the next display screen, select the **View Device List** option.

NOTE: The Diagnostics utility initializes physical drives attached to HP Drive Arrays.

Disk Subsystem Button Disabled in the Disk Storage Window

This could be the result of the Drive Array Agent not being loaded.

Solution:

Open the HP Insight Management Agents by selecting its icon from the Windows Control Panel, and verify that the Drive Array Information is located in the Active Agents lists.

Missing Disk Subsystem Button in the Disk Storage Window

A missing Drive Array or SCSI Adapter button indicates that the monitored device is not properly configured.

Solution:

Run the HP System Configuration Utility to configure your system properly.

No SNMP Traps or Alarms Received

If SNMP traps or alarms are not being received, then SNMP is not configured correctly.

Solution:

1. Open the **Network Control Panel** by selecting the icon from the Windows Control Panel, select the **SNMP Service**, and click **Configure**.
2. Verify that the SNMP Service is correctly configured with the appropriate destination information. Make sure the community name and host name/IP address is configured correctly.
3. Use the Event Viewer to see if the system event log is full. If the event log is full, SNMP cannot generate certain traps.
4. Use Test Trap from the Management Agents for Servers Control Panel to make sure that it works.

Problems Using Thresholds and SNMP Address-Specific Security

HP Insight Management Agents for Servers cannot read thresholds when SNMP address-specific security is enabled. Thresholds can be configured from HP Insight Manager, but no traps are received. When an agent event with ID 2355, Category 9 occurs, the following text is displayed in the System Event Log:

The Threshold Server Agent SNMP API failed. The data contains the error code.

This error occurs because the device cannot issue SNMP requests to itself.

Solution:

1. From the Control Panel, select the **Network** icon.
2. In the Installed Network Software List, select **SNMP Service**.
3. Click **Configure**.
4. Click **Security**.
5. In the SNMP Security Configuration dialog box, enter `localhost` or the address `127.0.0.1` to the list of host addresses from which the SNMP agent accepts packets.
6. Click **OK** to exit the SNMP Security Configuration Dialog box.
7. Click **OK** to exit the Network Settings Dialog box.

-
8. Reboot to make your changes take effect.

Problems if the address **127.0.0.1** is not Added to SNMP Host List

The following problems occur *only* if the address *127.0.0.1* is missing from the SNMP host list if SNMP host security is used in Windows Server 2003.

- **Event Log error messages**

The following error messages are displayed:

The HP Foundation Agents service could not terminate agent "CPQMHOST". The data contains the error code.

The HP Foundation Agents service could not start agent "CPQMHOST". The data contains the error code.

- **NIC information will not display**
- **Server Status Information displays incorrectly**
- **Traps generated by the LSI SCSI Agent will not get logged in the System Event Log**

For example, the Server Status information is highlighted in green. However, when the customer drills down to mass storage, the Server Status information will be highlighted in red. Therefore, the upper level view of the information incorrectly displays the status of the server.

Solution:

The IP address *127.0.0.1* is set on the SNMP host list by default when the SNMP protocol is installed.

Missing HP Integrity Storage System Information

The HP Integrity Storage System driver is not installed.

Workaround: Verify that the HP Integrity Storage System driver is shown under the Devices Control Panel icon in Windows Server 2003 select the Administrative Tools Control Panel icon and then the Computer Management icon. The driver is available in the HP Smart Setup media.

HP Insight Management Agents for Servers

The minimum browser requirements as stated under the earlier section "Installation Instructions" must be met for the Web-enabled Management Agents for Servers to work correctly.

Depending on how they were implemented, some browsers may or may not work correctly when used with different operating systems.

Glossary

Automatic System Recovery (ASR)

The ASR (Automatic System Recovery) feature provides an automated method to restart the system in case an unstable state of the Operating System is detected such as a system hang. While the system is continuously monitored and an unstable state exceeds a user configurable time (timeout), the system automatically restarts to recover from this condition.

Client

A computer connected to a server on the network.

Community String

The SNMP Community String is similar to a password, offering a limited amount of protection for the SNMP data.

HP Insight Management Agents for Servers

Software that can query a manageable server and provide information that responds to SNMP requests for data.

Desktop Management

A feature of HP Insight Manager that allows you to monitor HP PCs being used as clients.

In-band

Refers to the capacity to deliver information through existing network hardware. Synonymous with “on the network.”

Logical Drive

Multiple physical drives connected in a HP Drive Array to the same controller and combined to create logical drives. All available physical drive capacity is used by the logical drive as if it were a larger drive subsystem. By combining several physical drives, special fault tolerance and performance features can be used.

Managed Device

A device managed by a management console. Devices include servers, clients, routers, switches, and hubs. Servers and clients cannot be managed devices unless they have HP Insight Management Agents installed.

Management Information Base (MIB)

The document or file that defines all manageable traps known to the management agent and management application.

Management Console

The PC, workstation, or server that is running HP Insight Manager.

Monitored Item

The item that HP Insight Manager manages or monitors, or the information that HP Insight Manager collects.

Network Interface Controller (NIC)

An adapter card installed in a PC, workstation, or server that allows the PC or workstation to communicate with other devices connected to the same network. This term usually implies a local area network (LAN) adapter card.

Out of Band

Referring to the capacity to deliver information via modem. Synonymous with “off the network.”

Physical Drive

Multiple physical drives connected in a HP Array Controller to the same controller and combined to create logical drives. The logical drives use all of the available physical drive capacity as if it were a larger drive subsystem. By combining several physical drives, you can use special fault tolerance and performance features.

Simple Network Management Protocol (SNMP)

SNMP defines a set of commands that a management application uses to retrieve or change the values of items a management agent makes available.

Threshold

A preset limit that produces an alarm when reached or exceeded.

Trap

An indicator of a change or an error condition. *Also called* alarm.